

RECORD OF A CRYSTALLINE STYLE IN TWO FRESH WATER GASTROPODS

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As far as I can gather from a survey of the available literature a crystalline style does not seem to have been described as belonging to any member of the gastropod family Pleuroceridae. Some data concerning this interesting molluscan structure have been gathered during the course of a general anatomical study of some species of this family, a detailed account of which will be published later. However, it seems advisable to record these preliminary findings at the present time.

I have found a well formed crystalline style in *Pleurocera canaliculatum undulatum* (Say) and *Lithasia obovata* (Say) in connection with the intestinal tract. Although the style and associated structures have been observed in *Lithasia* and superficially appear very similar to that in *Pleurocera*, a detailed study has not been made in the case of the former. Therefore, the following description applies to *Pleurocera* only.

The style is about 1.5 mm. long and approximately 0.7 mm. thick in an animal of average size. Both ends are more or less rounded, the end toward the stomach being in a semi-liquid condition. The structure of the style agrees in general with that described for other forms. In a fresh style there is a distinct core, the "food core" of some writers, which is more opaque than the remainder of the style. The core is thickest at the posterior end and gradually narrows to a thin thread at the opposite end. The whole structure has a definite spiral arrangement which is seen most clearly in the core, the spiral being from left to right from the anterior to the posterior end. The consistency and color of the style vary greatly. In a supposedly healthy normal animal it is slightly flexible and varies from a clear transparent to a smoky bluish red. There is some evidence that temperature or food supply and possibly oxygen supply may have some effect on the style. In animals kept for some time at a temperature of 3° C. the style is from light to dark brown in color and the periphery is in a semi-liquid condition. A style has never been found in good condition in specimens which have

been preserved in alcohol or formalin or a mixture of the two. However, if a fresh style is removed and placed in a higher alcohol it coagulates almost immediately suggesting an albuminoid nature which has indeed been found to be the case by other workers on other animals. If a style is removed and placed in water, it completely dissolves in twenty minutes or less, the core being the first part to disappear.

The style-sac is of the type which is in restricted communication with the intestine through most of its length. However, it is really separated by the approximation of a major and minor typhlosole from the rest of the alimentary canal except for the large approximately round opening of the style-sac into the stomach through which the posterior end of the style projects to fit against the gastric shield. So in this important anatomical characteristic it is in agreement with *Crepidula*, *Paludestrina* and *Hypsobia*. In position, the style-sac is located directly anterior to the stomach and is about three-fourths as long. The lining epithelium is densely pigmented so that it appears iridescent when opened. The cilia characteristic of the remainder of the alimentary canal are most strongly developed in the style-sac.

The gastric shield which is usually associated with a crystalline style is found in the anterior part of the stomach on the right side opposite the style-sac opening. It is a thin, clear, very flexible sheet of material and fits firmly against the lining of the stomach. Its general shape and comparative size do not vary. The shape is roughly that of an oblong plate which has been twisted in a spiral fashion to form an incomplete tube toward the posterior end where the left side curves dorsally ending in a sharp edge which bears from two to seven acutely pointed teeth, their average number being six. The spines are continued on the outer wall of the shield as prominent ridges which fade out ventrally. The semi-liquid posterior end of the style fits against the gastric shield.

A more complete description of the style with illustrations will appear later in conjunction with an account of the complete anatomy of *Pleurocera canaliculatum undulatum* (Say). The writer wishes to thank Mr. Calvin Goodrich for identification of the animals used.